Lesson Plan

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Pushing and Pulling Object Investigation

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Science
Grades K–2

Introduction

What happens to an object when it is pushed? How does the surface an object is on affect how it moves?

Students will investigate how far various objects move based on pushing them on a flat surface, a rocky surface, by using a ramp, as well as various other platforms that students choose.

Learning Objectives

- K-PS2-1.
- Plan and conduct an investigation to compare the effects of different strengths or directions of pushes and pulls on the motion of an object.

Materials Needed

- *Give It a Push! Give It a Pull! A Look at Forces* by Jennifer Boothroyd
- Bouncy ball
- Toy car
- Straw (or various other objects that have the capability of rolling)
- Some sort of ramp (could be a book propped up on another book)
- Optional: iPad

Procedure

1. The teacher will read the students the book, *Give It a Push! Give It a Pull! A Look at Forces*, by Jennifer Boothroyd. The teacher will draw students' attention to various objects and how they move depending on the surface they are on. The teacher will start students thinking as to what happens when an object is given a push.
2. After reading, the teacher will ask students what would happen if they set their bouncy ball on the floor (it could move a little). They will then ask what would happen if they gave it a push (it would move across the classroom). The teacher will model the two ideas, asking students to conclude what they saw.
3. The teacher will then ask what would happen if they rolled the ball across the grass outside (option: going outside to observe that the ball moved slowly or maybe hardly at all). The teacher will ask the students what would happen if they set the object on a self-made ramp.

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4. Students will then be put into groups of three and given a baggie with a toy car, a bouncy ball, and a straw. Each group will investigate what happens when they set their objects down, when they give them a push, and when they use a ramp-like structure. The students can also investigate what happens when they push their objects on various surfaces like sand paper, grass, or other unique surfaces.

Evaluation

Students will answer three short questions to be turned into the teacher (these questions could be answered on an exit ticket piece of paper, in a small group discussion, or recorded using the iPad).

Ideas include:

- What happened when the ball was set on the floor?
- How did that change when the ball was given a push?
- Which object rolled the fastest across the classroom's flat floor?
- What happened when the surface wasn't flat?
- How did the use of a ramp assist the object in moving?